What is claimed:

1. A method of treating a subject with CNS damage, said method comprising administering to said patient:

- cells; and
- a neural stimulant

wherein the conjoint administration of cells and neural stimulant ameliorates the effects of CNS damage.

2. A method of claim 1 wherein said cells can give rise to neurons, oligodendroglia, astroglia and/or microglia.

3. A method of claim 1 wherein said cells are stem cells.

4. A method of claim 1 wherein said cells are neural stem cells.

5. A method of claim 1 wherein said cells are hematopoietic stem cells.

6. A method of claim 1 wherein said cells express a vmyc gene and wherein said gene is expressed in vitro causing said stem cells to proliferate and wherein said gene is expressed poorly after cell implantation in vivo such that the rate of cell proliferation in vivo decreases or ceases.

7. A method of claim 1 wherein said cells are derived from cells obtained from said subject.

8. A method of claim 1 wherein said neural stimulant comprises a bioactive polypeptide.

9. A method of claim 8 wherein said bioactive polypeptide comprises a polypeptide growth factor.

10. A method of claim 9 wherein said polypeptide growth factor is selected from the group consisting of: fibroblast growth factor family members; neurotrophin family members, insulin-like growth factor family, ciliary neurotrophic growth factor family members; EGF family members, TGFβ family members, leukemia inhibitory factor (LIF); oncostatin M, interleukin-6, interleukin-11; members of the platelet-derived growth factor family, and VEGF family members.

11. A method of claim 9 wherein said polypeptide growth factor is a polypeptide selected from the group consisting of: bFGF, aFGF, NGF, BDNF, NT-3, OP-1, FGF-3, FGF-4, FGF-5 and EGF.

12. A method of claim 9 wherein said polypeptide growth factor is a member of the FGF family.

13. A method of claim 9 wherein said polypeptide growth factor is a polypeptide at least 30% identical to a bFGF polypeptide shown in one of SEQ. ID. Nos. 1-3.

14. A method of claim 12 wherein said polypeptide is identical to a bFGF polypeptide show in one of SEQ. ID. Nos. 1-3.

15. A method of claim 1 wherein said neural stimulant is selected from the following group: a neurotransmitter, a neurotransmitter agonist, a neurotransmitter antagonist, a differentiation factor, a guidance molecule and transcranial magnetic stimulation.

16. A method of claim 8 wherein said bioactive polypeptide is not produced from a transgene contained within one or more of the coadministered cells.

17. A method of treating a subject with brain damage resulting from stroke, said method comprising administering to said patient:

- stem cells; and
- a neural stimulant

wherein the conjoint treatment with cells and neural stimulant ameliorates the effects of brain damage.

18. A method of claim 17 wherein said conjoint treatment is initiated at least 6 hours after the stroke was diagnosed.

19. A method of claim 17 wherein said cells can give rise to neurons, oligodendroglia and/or astroglia.

20. A method of claim 17 wherein said cells are neural stem cells.

21. A method of claim 17 wherein said cells are hematopoietic stem cells.

22. A method of claim 17 wherein said cells are derived from cells obtained from said subject.

23. A method of claim 17 wherein said bioactive polypeptide comprises a polypeptide growth factor.

24. A method of claim 23 wherein said polypeptide growth factor is selected from the group consisting of: fibroblast growth factor family members, neurotrophin family members, insulin-like growth factor family, ciliary neurotrophic growth factor family members; EGF family members, TGFβ family members, leukemia inhibitory factor (LIF); oncostatin M, interleukin 11; interleukin 6; members of the platelet-derived growth factor family, and VEGF family members.

25. A method of claim 23 wherein said polypeptide growth factor is a polypeptide selected from the group consisting of: bFGF, aFGF, NGF, BDNF, NT-3, OP-1, FGF-3, FGF-4, FGF-5 and EGF.

26. A method of claim 23 wherein said polypeptide growth factor is a member of the FGF family.

27. A method of claim 23 wherein said polypeptide growth factor is a polypeptide at least 30% identical to a bFGF polypeptide shown in one of SEQ. ID. Nos. 1-3.

28. A method of claim 23 wherein said polypeptide is identical to a bFGF polypeptide shown in one of SEQ. ID. Nos. 1-3.

29. A method of claim 17 wherein said neural stimulant is selected from the following group: a neurotransmitter agonist, a neurotransmitter antagonist, a differentiation factor, a guidance molecule and transcranial magnetic stimulation.

30. A method of claim 17 wherein said bioactive polypeptide is not produced from a transgene contained within one or more of the coadministered cells.

31. A method of claim 1 wherein said neural stimulant is administered intravenously, intracerebrally, intraventricularly or intracisternally.

32. A method of claim 1 wherein said cells are administered intravenously, intracerebrally, intraventricularly or intracisternally.

33. A method of claim 1 wherein said cells are administered intracerebrally and said neural stimulant is administered intracisternally.

34. A method of claim 1 wherein said cells and said neural stimulant are both administered intracisternally.

35. A method of claim 1 wherein said CNS damage results from stroke, trauma, hypoxia, Alzheimer's disease, Huntington's disease, amyotrophic lateral sclerosis, multiple sclerosis or Parkinson's disease.

36. A kit for treatment of brain damage comprising:

- stem cells; and

- a neural stimulant.

37. A kit of claim 36 further comprising apparatus for administering said stem cells, and apparatus for administering said neural stimulant.

38. A kit of claim 36 wherein said neural stimulant comprises a polypeptide at least 30% identical to a polypeptide of SEQ. ID. Nos.1-3.

39. A kit of claim 36 wherein said neural stimulant comprises the polypeptide of SEQ. ID. Nos. 1-3.

40. A kit of claim 36 wherein said stem cells comprise neural stem cells that express a vmyc gene and wherein said gene is expressed in vitro causing said stem cells to rapidly proliferate and wherein said gene is expressed poorly after cell implantation in vivo such that the rate of cell proliferation in vivo decreases or ceases.

41. A kit for treatment of brain damage comprising:

-- a device for obtaining a stem cell containing sample from a subject; and

-- a neural stimulant.

42. A kit of claim 41 wherein said neural stimulant comprises a polypeptide at least 30% identical to a polypeptide of SEQ. ID. Nos.1-3.

43. A kit of claim 41 wherein said neural stimulant comprises a polypeptide of SEQ. ID. Nos. 1-3.

44. A pharmaceutical composition comprising a neural stimulant, stem cells and one or more pharmaceutically acceptable carriers.

45. The pharmaceutical preparation of claim 44 wherein said neural stimulant is selected from the group consisting of: fibroblast growth factor family members, neurotrophin family members,

insulin-like growth factor family, ciliary neurotrophic growth factor family members; EGF family members, TGFβ family members, leukemia inhibitory factor (LIF); oncostatin M, interleukin-6; interleukin-11; members of the platelet-derived growth factor family, and VEGF family members.

46. The pharmaceutical preparation of claim 44 wherein said neural stimulant comprises a polypeptide selected from the group consisting of: bFGF, aFGF, NGF, BDNF, NT-3, OP-1, FGF-3, FGF-4, FGF-5 and EGF.

47. A pharmaceutical composition of claim 44 wherein said neural stimulant comprises a polypeptide that is a member of the FGF family.

48. A pharmaceutical composition of claim 44 wherein said polypeptide comprises a polypeptide at least 30% identical to a sequence shown in one of SEQ. ID. Nos.1-3.